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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,649	08/19/2003	Peter Deane	PAT 2139-2-US	3737

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EXAMINER	
TSEGAYE, SABA	
ART UNIT	PAPER NUMBER
2619	

NOTIFICATION DATE	DELIVERY MODE
04/09/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/642,649	DEANE ET AL.	
	Examiner	Art Unit	
	SABA TSEGAYE	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to amendment filed 01/03/08. Claims 1-19 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

2. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott (US 6,522,642 B1) in view of Lam (US 6,721,506).

Regarding claims 1-4 and 12, Scott discloses, in figs. 2 and 4, an apparatus for processing N number of input signals having a common frequency, said apparatus comprising:

at least N-1 number of modulators for modulating N-1 of said N number of input signals into N-1 number of modulated signals (column 3, lines 34-47);

a combiner for combining said modulated signals along with one non-modulated signal into an aggregate signal (column 4, lines 32-35);

N-1 number of demodulators for demodulating said aggregate signal, each said demodulator corresponding to one of said modulators (column 6, lines 1-6; column 13, lines 16-25); and

N number of duplexer filters each corresponding to one of said N number of input signals (column 4, line 65-column 15, line11);

wherein said demodulators, and said duplexer filters, are arranged so as to pass N number of demodulated portions of said aggregate signal to a corresponding output and each of said

demodulated portions being substantially identical to one of said N number of input signals (column 4, line 65-column 15, line11).

Scott does not disclose number of circulators for receiving at least part of aggregate signal.

Lam teaches that cascaded grating **circulator** arrangements may be used to transmit and/or receive WDM data link. Using a chirped fiber Bragg grating coupled to and optical circulator in the transmitter and/or receiver used in a WDM PON to select one or more FSR's to be delivered to user nodes. The chirped FBG optical circulator wavelength add/drop technique is useful in coarse WDM systems, which allow for more tolerance to wavelength shifting (column 11, lines 5-34; column 3, lines 5-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plurality of circulators, such as suggested by Lam, to the system of Scott in order to avoid delay and building up dispersion in the signal pulses (column 11, lines 25-37).

Regarding claim 5, Scott discloses the apparatus wherein said length of cabling spans at least a portion of an antenna structure (column 9, lines 20-28).

Regarding claim 6, Scott discloses the apparatus, further including a plurality of amplifiers each located such that said input signals pass through a respective one of said plurality of amplifiers prior to passing through said at least N-1 number of modulators (column 3, lines 7-11; column 4, lines 35-40).

Regarding claims 7, 13 and 14, Scott discloses the apparatus wherein said input signals are forward link transmissions and said plurality of amplifiers are high power amplifiers (column 4, lines 35-40; column 6, lines 45-51).

Regarding claims 8 and 15, Scott discloses the apparatus wherein said input signals are reverse link transmissions and said pluralities of amplifiers are low power preamplifiers (column 6, lines 45-51).

Regarding claims 9 and 16, Scott discloses the apparatus wherein said input signals are forward link transmissions and said apparatus further includes a single high power amplifier for amplifying said aggregate signal, said high power amplifier located between said combiner and said length of cabling (column 6, lines 45-51).

Regarding claims 10 and 17, Scott discloses the apparatus wherein said modulators and said demodulators operate via a modulation scheme using Walsh codes (column 12, lines 40-50).

Regarding claims 11 and 18, Scott discloses the apparatus wherein said modulators and said demodulators operate via a modulation scheme using Serrodynes (column 4, lines 61-64).

Regarding claim 19, Scott discloses an apparatus for processing N number of modulated, combined, and amplified input signals having a common frequency, said apparatus comprising:

a demodulator for demodulating an amplified aggregate signal consisting of said input signals, said demodulator including (column 6, lines 1-6; column 13, lines 16-25),

N-1 number of demodulators for demodulating said aggregate signal (column 11, lines 1-25); and

N number of duplexer filters each corresponding to one of said N number of input signals (column 4, line 65-column 15, line11);

wherein said demodulators, and said duplexer filters are arranged so as to pass N number of demodulated portions of said aggregate signal to a corresponding output, each of said demodulated portions being substantially identical to one of said N number of input signals (column 4, line 65-column 15, line11).

Scott does not disclose number of circulators for receiving at least part of aggregate signal.

Lam teaches that cascaded grating **circulator** arrangements may be used to transmit and/or receive WDM data link. Using a chirped fiber Bragg grating coupled to and optical circulator in the transmitter and/or receiver used in a WDM PON to select one or more FSR's to be delivered to user nodes. The chirped FBG optical circulator wavelength add/drop technique is useful in coarse WDM systems, which allow for more tolerance to wavelength shifting (column 11, lines 5-34; column 3, lines 5-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plurality of circulators, such as suggested by Lam, to the system of Scott in order to avoid delay and building up dispersion in the signal pulses (column 11, lines 25-37).

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott (US 6,522,642 B1) in view of Weber et al. (US 4,161,694).

Regarding claims 1-4 and 12, Scott discloses, in figs. 2 and 4, an apparatus for processing N number of input signals having a common frequency, said apparatus comprising:

at least N-1 number of modulators for modulating N-1 of said N number of input signals into N-1 number of modulated signals (column 3, lines 34-47);

a combiner for combining said modulated signals along with one non-modulated signal into an aggregate signal (column 4, lines 32-35);

N-1 number of demodulators for demodulating said aggregate signal, each said demodulator corresponding to one of said modulators (column 6, lines 1-6; column 13, lines 16-25); and

N number of duplexer filters each corresponding to one of said N number of input signals (column 4, line 65-column 15, line11);

wherein said demodulators, and said duplexer filters, are arranged so as to pass N number of demodulated portions of said aggregate signal to a corresponding output and each of said demodulated portions being substantially identical to one of said N number of input signals (column 4, line 65-column 15, line11).

Scott does not disclose number of circulators for receiving at least part of aggregate signal.

Weber teaches a radio system in which a plurality of high-frequency channels are provided in a link between a transmitting and a receiving station and channels being **combined** at the transmitting station to form a common high-frequency group, and separated at receiving

station over a cascade circuit comprising **a plurality of circulators** and a plurality of band-pass filter (see fig. 2, column 3, lines 25-52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plurality of circulators, such as suggested by Weber, to the system of Scott in order to keep the transmission attenuation between the particular transmitter output and associated receiver input as low as possible (Weber column 3, lines 65-67).

Regarding claim 5, Scott discloses the apparatus wherein said length of cabling spans at least a portion of an antenna structure (column 9, lines 20-28).

Regarding claim 6, Scott discloses the apparatus, further including a plurality of amplifiers each located such that said input signals pass through a respective one of said plurality of amplifiers prior to passing through said at least N-1 number of modulators (column 3, lines 7-11; column 4, lines 35-40).

Regarding claims 7, 13 and 14, Scott discloses the apparatus wherein said input signals are forward link transmissions and said plurality of amplifiers are high power amplifiers (column 4, lines 35-40; column 6, lines 45-51).

Regarding claims 8 and 15, Scott discloses the apparatus wherein said input signals are reverse link transmissions and said pluralities of amplifiers are low power preamplifiers (column 6, lines 45-51).

Regarding claims 9 and 16, Scott discloses the apparatus wherein said input signals are forward link transmissions and said apparatus further includes a single high power amplifier for amplifying said aggregate signal, said high power amplifier located between said combiner and said length of cabling (column 6, lines 45-51).

Regarding claims 10 and 17, Scott discloses the apparatus wherein said modulators and said demodulators operate via a modulation scheme using Walsh codes (column 12, lines 40-50).

Regarding claims 11 and 18, Scott discloses the apparatus wherein said modulators and said demodulators operate via a modulation scheme using Serrodynes (column 4, lines 61-64).

Regarding claim 19, Scott discloses an apparatus for processing N number of modulated, combined, and amplified input signals having a common frequency, said apparatus comprising:

a demodulator for demodulating an amplified aggregate signal consisting of said input signals, said demodulator including (column 6, lines 1-6; column 13, lines 16-25),

N-1 number of demodulators for demodulating said aggregate signal (column 11, lines 1-25); and

N number of duplexer filters each corresponding to one of said N number of input signals (column 4, line 65-column 15, line11);

wherein said demodulators, and said duplexer filters are arranged so as to pass N number of demodulated portions of said aggregate signal to a corresponding output, each of said

demodulated portions being substantially identical to one of said N number of input signals (column 4, line 65-column 15, line11).

Scott does not disclose number of circulators for receiving at least part of aggregate signal.

Weber teaches a radio system in which a plurality of high-frequency channels are provided in a link between a transmitting and a receiving station and channels being **combined** at the transmitting station to form a common high-frequency group, and separated at receiving station over a cascade circuit comprising **a plurality of circulators** and a plurality of band-pass filter (see fig. 2, column 3, lines 25-52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a plurality of circulators, such as suggested by Weber, to the system of Scott in order to keep the transmission attenuation between the particular transmitter output and associated receiver input as low as possible (column 3, lines 65-67).

Response to Arguments

4. Applicant's arguments filed 01/03/08 have been fully considered but they are not persuasive. Remarks, on page 2, the Applicant submit that *the rejection fails to establish a sufficient motivation for a person skilled in the art to combine these references. Further, Applicant argues that ...while Lam does indeed discuss the need to avoid dispersion, this problem is directed to dispersion that results from the optical signal propagating through an optical fiber and NOT a problem relevant to Scott's wireless diversity antenna scheme.* The Examiner recognizes that references cannot be arbitrarily combined and that there must be some

reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971), references are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA) 1969. In this case Scott discloses a combined signal (called a backhaul signal) is transmitted along the backhaul cable as shown in fig.2. Further, Scott suggests that backhaul signal may be made suitable for transmission over **fiber optic cable**, a coaxial cable etc. (column 4, lines 41-43). Lam teaches that transmission optical fiber cables between the transmitter and the receiver introduce dispersions into the optical signal which increases with the transmission distance cable. Therefore, the motivation to add circulators to the system of Scott is that to avoid delay and building up dispersion is appropriate.

Still on page 2, in response to Applicant's argument that Scott and Lam are not analogous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *In re* Wood, 202 USPQ 171, 174. In this case, as disclose above, Scott suggests that backhaul signal may be made suitable for transmission over **fiber optic cable**, a coaxial cable etc. (column 4, lines 41-43). Lam teaches that transmission optical fiber cables between the transmitter and the receiver introduce dispersions into the optical signal which increases with the transmission distance cable. Therefore, the transmitter and the receiver

should be connected in opposite orientations with respect to the circulator to avoid delay and building up dispersion in the signal pluses (column 11, lines 25-37). Thus, Examiner believes the rejection is proper.

On pages 3-4, Applicant argues that Weber teaches a system which multiple signals at different channels are transmitted from the same antenna. It is respectfully submitted that the rejection is based on the combined teaching of Scott and Weber reference, and that the Scott reference, a pointed out above, does teach this feature.

It is respectfully submitted that the pending claims as they currently stand read in the Scott and Weber references.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SABA TSEGAYE whose telephone number is (571)272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Saba Tsegaye
Examiner
Art Unit 2619

/S. T./
March 31, 2008

/Wing F Chan/
Supervisory Patent Examiner, Art Unit 2619
4/1/08